BROWN SWISS WEAVER SYNDROME: STUDIES OF MUSCLE PATHOLOGY

by

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DEDICATION

Dedicated to my mother,
Dorothy C. Mueller, for
her continual encouragement.

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INTRODUCTION

The direct relationship between congenital and hereditary myopathies and economics justify examination of causes and prevention where possible. Congenital defects are abnormalities of structure or function present at birth (Leipold et al, 1972). In spite of the fact that a defect is present at birth, it may not be identifiable until later in life and requiring clinical, biochemical or pathological examination for confirmation.

The lack of a universally accepted system for classifying congenital defects makes comparison of reported data difficult, since myopathies are often reported as musculoskeletal or muscle-skin defects. Nevertheless, all myopathies are of economic importance and frequent occurrence. A nine year study of 2,293 congenitally affected calves in Hesse, Germany, assigned a value of 13.7% to the frequency of musculature defects (Rieck, 1968). Greene et al (1973) reported a frequency of 14.9% for muscle defects of calves in Kansas. The frequency of any individual defect or body system defect, and the total number of defects likely, will vary with breed, geographic area, and year (Leipold et al, 1972). After examining the above data the significance of congenital myopathies to the

animal production industry becomes more apparent, as muscle is sold as food.

Congenital defects result from genetic and environmental factors or a combination of both (Leipold et al, 1972). Genetic factors are characterized either by chromosomal aberrations, which can be directly diagnosed, or by mutant genes, which can be identified indirectly by their pattern of transmission (Saperstein et al, 1975). Except for chromosomal aberrations, genetic defects are recognized only when they occur in characteristic intragenerational familial frequencies and intergenerational patterns (Leipold et al, 1972). All genetic defects have environmentally-induced phenocopies which should be kept in mind when defining causative agents. Viruses, drug and plant teratogens, age, hypoxia, hyperthemia, season and nutrition have been cited as environmental factors causing congenital defects. Unfortunately, specific teratogens or their signs often cannot be demonstrated or isolated even after extensive pathological investigations (Leipold 1978a). It is with these thoughts in mind that a review of congenital myopathies in animals was undertaken.

I. REVIEW OF LITERATURE